

as it would seem, possesses a marked influence on the development of this form of cataract, which appears most commonly between twenty-five and forty. The existence of the ocular complication may be to a certain extent taken as a gauge of the gravity of the diabetic symptoms, as it is only in severe and confirmed cases that cataract is present. The alterations in the anatomical character of the lens seem for the most part to be preceded by frontal and supra-orbital neuralgia, and diminution of visual power, or amblyopia. These changes generally commence about eighteen months or two years after the beginning of the malady, and progress, *pari passu*, with the increase of the sugar in the urine. The advance of the cataract may be either rapid or slow. In certain cases both eyes have been attacked, and the patient has been deprived of sight, within the space of a few days; in others, the disease has been slow, and it has been possible to watch its progress from day to day. According to Dr. Lécorché, in the latter case streaks (striae) have been observed on the posterior aspect of the lens, converging from the periphery to the centre, augmenting in number each day, and gradually overspreading the crystalline surface so as to constitute that form of cataract known as the soft variety. When one eye alone is affected at the outset, it is mostly the right that suffers; the disease spreading, however, inevitably, within a given lapse of time, to the opposite organ. Whereas in cases of hard cataract the direct impression of light is painful to the patient, in this particular variety it is greedily sought. When the cataract is complete (and herein lie the elements of differential diagnosis) the lens is bulky, as it were swelled, and generally of a bluish-white tint. The iris is seen to bulge forwards towards the cornea, in consequence of the encroachment upon the posterior chamber by the disorganized crystalline body. The retina, when examined by the phosphenic test, is in the great majority of cases found to be healthy. With regard to the propriety of operation, the author remarks that where the diabetes is complicated with albuminuria no surgical interference should be attempted; the same rule holding good in the event of tubercular phthisis, marasmus, or other such unfavourable condition co-existing with the cataract. The choice as to the particular mode of operation to be adopted has already been decided by M. de Graefe, who advises either extraction by the linear method, or else a combination of iridectomy and the usual flap operation, the former preceding the latter by an appropriate interval."

61. *Cases of Reflex (?) Amaurosis with Coloured Vision.* By J. H. JACKSON, M. D., Clinical Assistant at the Royal London Ophthalmic Hospital, &c.—The first of the following cases is interesting not only pathologically, but also in relation to a medico-legal question recently raised in a court of law; and it is the more valuable that, not having occurred after any injury, there was no room for suspicion of unfairness in the description of the symptom by the patient—a symptom which, even after the use of the ophthalmoscope, must remain subjective. Before I relate the case, however, I may mention that the medico-legal question was raised in a recent action brought by a corn-dealer against a railway company, to recover damages for defective vision following on injuries received in a railway accident. The defect was stated to be coloured vision (yellow), so that the plaintiff was unable to distinguish yellow and white wheat—both looked yellow. In this case there was, I believe, no subjective symptom, either to the eye, unassisted, or aided by the ophthalmoscope.

A man, aged 39, admitted as an out-patient under Mr. Poland, came under my care on June 1st, for impaired sight, which had commenced gradually three months before. He could not read the largest print, and was led to the hospital. He had no pain, and had had none from the first. He had been temperate, and, except for the defect of sight and a few nervous symptoms, to be presently alluded to, was quite well. His eyes were examined by the ophthalmoscope by several observers, and both the optic disks were found to be anæmic. There was no trace of choroidal or iritic inflammation. The interesting point in this case, however, was, that the patient saw everything as if yellow; it mattered not what colour they might really be—they were all yellow. Again, this pathological condition was rendered interesting by the fact of his business being interfered with from the first, not merely by loss of the power of seeing, but by

the objects being seen coloured. Thus he might have pursued his business, of buying wood, in spite of considerable impairment of vision, if the element of colour did not come into play; *but he was unable to distinguish red-pine from yellow-pine, both looking yellow.*

In this case there was, as the ophthalmoscope showed, disease of the optic nerves, without any evidence of disease of the other structures of the eye, but there were symptoms which led me to believe that changes were also going on at the same time in other parts of the nervous system. These symptoms were only, however, temporary trembling of the legs, without evident cause, lasting for some time, a jerking up of the left leg, and a sensation of "pins and needles" in the toes, trifling as effects, but serious as signs of impaired nutrition of certain parts of the nervous system. I believe that they were signs of impaired nutrition in other parts of the nervous system coetaneous with—and not causing—the loss of sight. I suppose (how produced is another matter), that the anæmic condition of the optic disks, signifies impairment of the blood-supply of the whole retina, and that this patient's loss of the power of seeing and also of receiving a correct impression from light admitted into his eye, was due to some change, more or less permanent, in the retina itself, consequent on impaired nutrition, and yet in many cases of anæmic optic entrance there is no history of coloured vision. In many, however, there is; and red, and sometimes green "fogs" are mentioned. I have notes of a case of one patient who first saw a blue cloud before his eyes, which subsequently became black, or as we may say of all these cases that of the three colours which compose white light, one only is seen, and then later none, *i. e.*, when the "cloud" becomes black. In this case it was clear that there was no other disease of the eye than atrophy of the optic nerve. In fact, when he first came, several observers considered that the fundus was normal; subsequently, however, there was no doubt that the optic disks were in the condition commonly called atrophy.

In both these cases there was another symptom of interest, *viz.*, that the sight varied remarkably. The patient who saw yellow said, that one morning, after having been excited, his "sight totally left him," and that in consequence, for a quarter of an hour, he could not see *at all*. He found, too, that his sight varied in the day. It was better in the morning, worse in the middle of the day, and better again late in the afternoon. In the other case, the patient, for a short time, recovered his sight entirely. He was a very intelligent man, and he described circumstantially what he saw, and what he was doing. This only occurred twice, and only lasted for about half a minute. I have said that I believed the loss of sight was due *directly* to what the ophthalmoscope showed, *viz.*, to local disease in the retina, and this from impairment of its circulation, from contraction of the bloodvessels, the result, as I believe, in all these cases, of some eccentric irritation—the *indirect* cause of the blindness. I admit that in neither of these cases was I able to fix on even a possible cause of irritation; but in other cases, in which the condition of the optic disks was similar, I have had more certain evidence that some eccentric irritation existed. In one case, from this condition of the optic entrance, I considered the diagnosis I had made of disease of the cerebellum was rendered certain, and such proved to be the case. Again, although this feature also is absent in this case, the suddenness of the attack is some evidence, I think, that this affection, like other forms of paralysis, is due to eccentric irritation; and then, again, the sudden alterations in the sight would, I think, show that there could be no organic change *par excellence*, either in the retina or in the cerebral part of the organ of vision. I have found that these alterations take place only in the beginning of the affection. Of course, later, the continued defect of blood-supply produces permanent loss of function. We all admit cases of paralysis of a leg or arm in a child to be very often reflex, occurring *suddenly*, the paralyzed limb being cold, and ultimately wasting, the cause being probably, not a lesion between the nerves of the limb and the central nervous system, but some eccentric irritation acting on its bloodvessels. Then in other cases of reflex paralysis, as reflex paraplegia, sudden alterations of power are often well-marked. I should say then, that in this form of amaurosis there is some eccentric irritation acting on the vessels of the optic nerve and retina producing anæmia, and thus more or less loss of

function. Dr. Brown-Séquard tells me, that he has collected more than sixty cases of amaurosis connected with diseases of the cerebellum, produced, as he believes, by reflex action. The two following quotations from Dr. Spillan's translation of *Andral's Clinique Médicale*, will be interesting in relation to this subject.

"With respect to the fourth case published by Dr. Michelet in his Thesis, it is deserving of all our attention.

"This was the case of a girl, eighteen years of age, who two years before her death had had an attack of apoplexy, the result of which was *amaurosis without any other paralysis*, and habitual headache. An apoplectic cavity of long standing was found in the right lobe of the cerebellum." This could but have caused pressure upon the corpora quadrigemina. Speaking of a case of blindness, associated with hemiplegia consequent on disease of the cerebellum, he writes: "With respect to the blindness, it seems at first that it has nothing to do with disease of the cerebellum, and yet this case is not the only one in which different affections of the cerebellum have been accompanied by a loss of vision. May this fact be explained by the anatomical relation established between the cerebellum and the tubercula quadrigemina by means of the prolongations known by the name of the *processus e cerebello ad testes*."

In reference to the case I have related, I have only to add, that the patient who had the yellow vision is now almost well. He took iodide of potassium for some time, and later tincture of *nux vomica* in ten minim doses. Whether, however, his recovery is due to it, or to the iodide, or to neither, I do not pretend to say. If the theory of this case is the correct one, strychnia, which causes dilatation of the bloodvessels, should be the remedy for this form of amaurosis. Of course I do not pretend that there is any great novelty in the disease, the theory, or the remedy, although I do not know that this special form of amaurosis and the ophthalmoscopic condition have been *both* before linked to the theory of reflex paralysis. To show how little credit I pretend to claim, I insert the following quotation from one of Dr. Brown-Séquard's lectures in the *Lancet* for July 13, 1861:—

"*Amaurosis*.—This symptom may depend upon a lesion of the tubercula quadrigemina, or, of course, of the retina and any part of the length of the optic nerves; but it may also be the result of two other and distinct kinds of causes. It may be due to the effect of an irritation starting from any sensitive nerve in the body, or from certain parts of the nervous centres. An amaurosis in such cases seems to be the manifest result of a reflex action. I have seen it produced in that way in animals after an injury to the spinal cord. I have collected sixty-two cases of disease of the cerebellum in which it has been most likely produced in the same manner. My friend, Dr. Davaine, in his excellent work on Worms, mentions twelve cases in which amaurosis was due to worms. An irritation of the frontal nerve may bring on a reflex amaurosis, which is quickly cured after the division of the irritated nerve. Neuralgia of the face not rarely causes a reflex amaurosis. I have seen three cases of that kind, and others are on record. It is known that a simple irritation of the nerves of the stomach in gastralgia may produce a reflex amaurosis. This paralysis of the optic nerve, like all other reflex paralyses, is characterized by the following features: 1st, it, of course, only appears after the irritation which is considered as its cause; 2d, it is not accompanied by any evident alteration of the nerve or of the tubercula quadrigemina; 3d, it increases or diminishes in perfect correspondence with an increase or a diminution of its supposed cause; 4th, it is generally quickly cured or ameliorated when the supposed cause is removed."

I may also just suggest that cases of this kind might, if carefully examined, throw some light on the question, whether the eye or the brain perceives colour. I believe that the eye itself completes the act of seeing, not only in reference to form, size, and distance, but also as to colour, and that the brain merely perceives what is sent to it from the eye. My object in introducing the remarks on reflex amaurosis was to show that the disease produced is a local one of the retina, and not of the brain, or at least not of that part of it which has to do with the reception of the *idea* of size, form, colour, &c., from the retina; so

that the coloured vision was a consequence of local disease in the eye. The brain erred, not primarily, but in *receiving* false intelligence from the retina.

As to the subject of reflex amaurosis, by itself, I hope to be able to bring forward better evidence in a future paper; and by the kindness of Dr. Brown-Séquard and Mr. Poland, I shall be able to collect this evidence from several points of view, and thus to be able to separate more clearly this form of amaurosis from another group depending on intracranial disease affecting the course and origin of the optic nerves. I also hope, which is also of great importance, to explain those transient and slighter affections of the sight so common in cases of vertigo, the various kinds of headache, epilepsy, and simple debility. And conversely to throw some light on these diseases themselves by studying the circulation of the retina and iris—the very furthest outpost of the cerebral circulation—and thus to render more complete the natural history of those diseases.

The following extract from a letter from my friend Dr. Haydon, of Bovey Tracey, is of great interest in relation to the subject of coloured vision: I give it in his own words:—

“I was called yesterday to see an old lady with a somewhat strange condition of her visual apparatus; about a fortnight since ‘she suddenly discovered that her right eye was all but dark, and that she could only see things with her left eye, and that all she did see appeared of a blood-red colour.’ I give her own words. There is no cataract, or other appreciable defect in her right eye, nor can any external examination detect disease in the left; she has had no seizure or appreciable disease of the brain, but she is very stout, near seventy years old, heavy and sleepy; some two years since had some functional derangement of liver, followed by general dropsy. Free purging and a little calomel removed this; and there has been no return of it. Living careless, diet poor, no stimulants; the pupils dilate and contract readily and freely. I once before had a case very similar to this as regards the seeing everything of a red colour, but that person (also an old woman) had become so diseased in sight after an attack of apoplexy.”

Dr. Haydon subsequently informed me that this patient recovered her sight. There was no ophthalmoscopic examination, and it is therefore possible that there may have been some other more organic disease than mere impairment of the nutrition of the retina. If, however, it was, which is my opinion, a case of reflex amaurosis, I have now given a case of red, yellow, and blue vision, or, as I have said before, a case in which (white light entering the eye), the retina did not perceive the yellow and the blue rays, another in which it did not perceive the red and the blue, and a third in which it did not perceive the red and the yellow. I might have given others in which, as I think, the change has gone a step further, and in which the patient, to use for convenience a contradictory expression, saw blackness, or rather did not see at all. In the congenital colour blindness there is an inability to see the colour of an object, and generally the red, the most refrangible, is the one which is not seen. As I say, in the above cases, the colours were various, but I can conceive that it is possible, that in the progress to blindness, there is, although unobserved by the patient, one order of progress, but in what order, and whether beginning from one end of the spectrum or not, I do not pretend to know.—*The Royal London Hospital Ophthalmic Reports*, Oct. 1861.

MIDWIFERY.

62. *Early Maternity*.—Dr. J. G. WILSON, of Glasgow, records (*Edinb. Med. Journ.*, Oct. 1861) an instance of this. A girl at the age of thirteen years and six months gave birth to a full-grown female child. Conception must have taken place when the girl was twelve years and nine months old.

Mr. Robertson records (Midwifery) a case where a factory girl became preg-